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NMR field gradient diffusometry of segment displacements in melts of entangled polymers

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Abstract

Segment diffusion in a polyethyleneoxide melt (Mw = 5 000 000) was studied with the aid of the supercon fringe field version of field-gradient NMR diffusometry. The evaluation based on the second moment of the probability density function, i.e., the mean squared displacement, shows reasonable agreement with the predictions of the tube/reptation model. However, taking into account the whole probability density function, leads to substantial discrepancies. © 1995 American Institute of Physics.